Apple Quality Classification using Deep Learning

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Abstract: *Classifying apple quality is essential for refining the apple sales market and boosting sales. Currently, most methods based on convolutional neural networks (CNNs) rely heavily on large amounts of training data to achieve good performance. However, because there is no large public dataset available for apple appearance, it's challenging to reach high accuracy with only a small number of samples.*

To address this, we propose an enhanced CNN-based method for classifying apple appearance quality using limited data. First, we use a Support Vector Machine (SVM) for image segmentation to eliminate noise from the environment, which can reduce recognition accuracy. Next, we feed the segmented images into a Deep Convolutional Generative Adversarial Network (DCGAN) to generate more training data..

Keywords: Feature extraction, machine learning algorithms, apple, image preprocessing, Image Processing, Convolutional Neural Network (CNN), Machine Learning, etc